

2026 UPIISC Annual Workshop Introduction

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University of Pittsburgh

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Date: June 3, 2026



*Cathedral of Learning
University of Pittsburgh*



2026 UPIISC Annual Workshop

GOALS

The goals of the workshop are to increase awareness of existing on-going research and collaborations with University of Pittsburgh and regional stakeholders in the following areas:

1. Development of novel sensor technologies as solutions to infrastructure sensing needs;
2. Regional collaboration to promote workforce development in the emerging sensor area for near term R&D capability needs and future deployment and commercial needs;
3. Engagements with industry and stakeholders, regarding sensor technologies and related technology transfer;
4. Team and collaboration partnerships capable of responding to funding agencies' and industry's call for sensor technologies.

**Voice of Industry and
Government Stakeholders**

**Technology Maturation
and Technology Transfer**

**Workforce
Development**

2026 UPIISC Annual Workshop

SCOPE

The workshop particularly seeks to focus on the following areas:

1. Multiple sensing platforms with spatially distributed sensing capability (e.g. optical fiber sensing, passive wireless sensors, electrochemical sensors, chip sensors)
2. Spanning sensor technology development areas from fundamental principles of sensor materials to prototypes in field validations, prototypes in field validations,
3. Coupling with physics-based modeling and artificial intelligence (AI)-enabled sensor networks and digital twin technologies for specific infrastructure needs.

IMPACTS

The workshop seeks to promote intelligent infrastructure sensing for the following impacts:

1. Predictive monitoring before infrastructure failures occur (structural, electrical, etc.)
2. Mitigation of green-house gas emissions,
3. Enabling large-scale H2 transportation,
4. Supporting needs for a robust and resilient electricity and natural gas transportation and delivery system,
5. Early detection of environmental contamination

2026 UPIISC Annual Workshop

STEERING COMMITTEE MEMBERS

The steering committee is a group of prominent scientists and leaders that were carefully selected to represent key segments and application areas of critical importance to the UPIISC objectives. The advisory group provides the faculty and leadership team with insights about emerging needs and trends within relevant industries and across various agencies.

Chris Moore, GTI, Leader of Strategic Technical Programs, cmoore@gti.energy

Jessica Valentine, Duquesne Light Company, Manager Advanced Grid Technology, jvalentine@duqlight.com

Susan Maley, Electric Power Research Institute, Program Manager, smaley@epri.com

Robert Lieberman, Lumoptix, President, rlieberman@lumoptix.com

Gary Choquette, Pipeline Research Council International (PRCI), gchoquette@prci.org

Arvind Tiwari, GE Vernova, Program Manager, Arvind.tiwari1@ge.com

Joshua Carter, Naval Surface Warfare Center, Lead Photonic Engineer, joshua.e.carter29.civ@us.navy.mil

Christopher Good, Naval Surface Warfare Center, christopher.a.good8.civ@us.navy.mil

Mat Podskarbi, Aveva, Strategic Account Executive, mat.Podskarbi@aveva.com

Kalyan Sharma, Synopsys Inc, Senior Manager, kalyan.Sharma@synopsys.com

Natural Gas, Oil, & H₂ Transport & Storage



Electricity Grid Transport & Storage

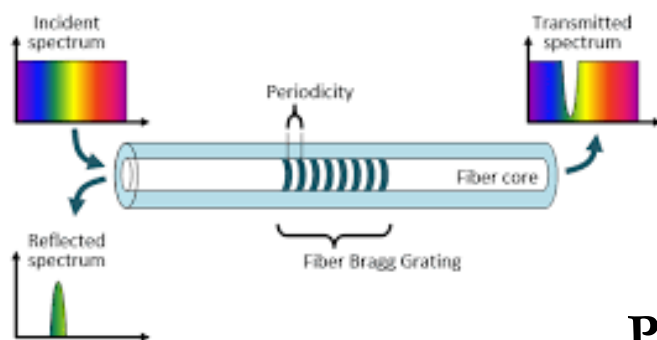


Power Generation

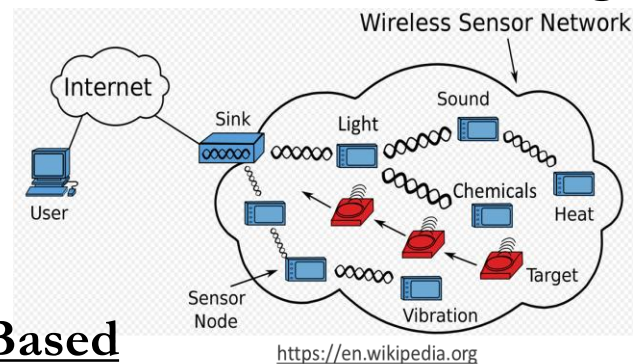


Mission: UPIISC Seeks to Pursue Research and Innovation, Workforce Development, and Technology Transfer in the Area of Critical Infrastructure Sensing and Monitoring

Optical Fiber Sensing

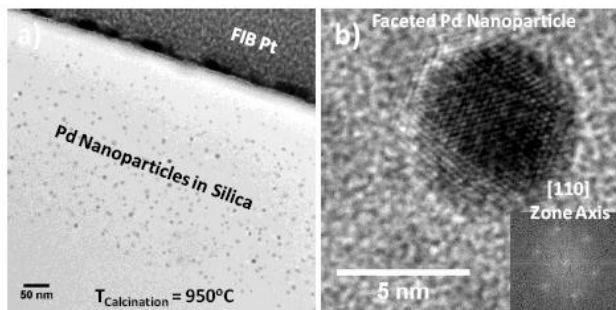


Passive Wireless Sensing

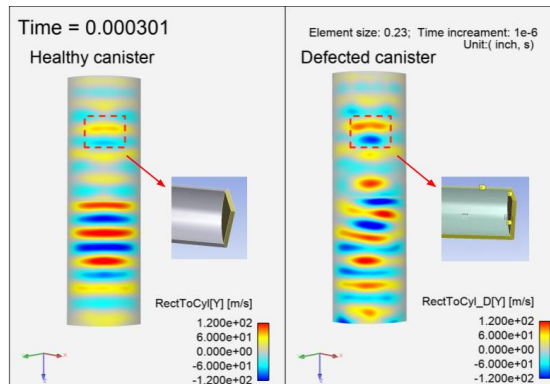


Physics Based

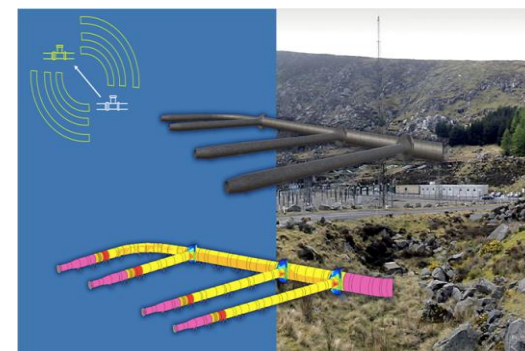
Novel Sensing Materials



Machine Learning & AI

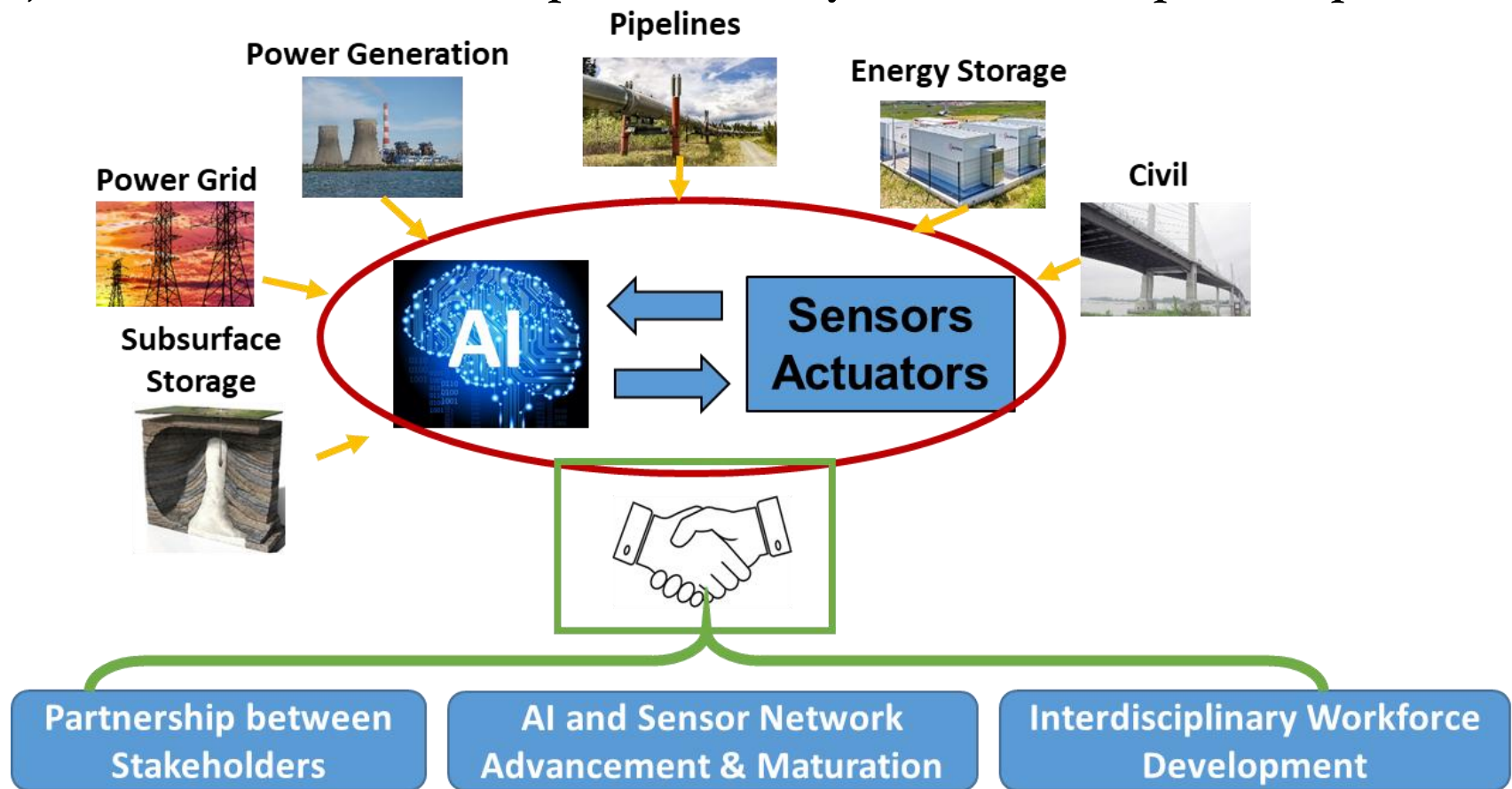


Digital Twin Models



Enabling Technologies: UPIISC Scope Encompasses all Aspects of Critical Infrastructure Sensing Spanning Enabling Technology, Hardware, Communications, Data, and Analytics.

Objective of UPIISC Workshop : Community and Partnership Development



University, Lab, Industry, and Government Partnerships are Necessary to Maximize Impact

2022 UPISC Inaugural Workshop : August 2022



UPISC UNIVERSITY OF PITTSBURGH
INFRASTRUCTURE SENSING
COLLABORATION WORKSHOP

UPISC Inaugural Workshop
August 2022

Energy Innovation Center

www.engineering.pitt.edu/UPISC

75 Registered Attendees

Strong Feedback and Dialogue
Encouraged Annual Offering as Well as
Action Items Into the Future

Highly Successful Initial Workshop Held in 2022 Confirmed the Need and Opportunity

2026 UPIISC Annual Workshop : Overall Statistics

1. Agenda and Invited Speakers Organized by UPIISC Steering Committee
2. Close Collaboration Between NETL and U. Pitt. for Organization
3. Navy Engagement in Organization and Planning (New for 2026!)
4. >100 Registered Guests for In-Person Attendance (No Remote Option)
5. ~20 Technical Posters from U. Pitt. and NETL Students and Researchers
6. Sponsored by the New INSITES Consortium for 2026
(INSITES Seed Funds Provided by Office of Senior Vice Chancellor for Research)

UPIISC

UNIVERSITY OF
PITTSBURGH
INFRASTRUCTURE
SENSING

COLLABORATION WORKSHOP



2026 UPIISC Annual Workshop Registered Attendee Organizations



Carnegie Mellon University



UNIVERSITY OF
MARYLAND

LUNA



ArQ Sensors



NATIONAL
ACADEMIES

Sciences
Engineering
Medicine



National
Laboratory
of the Rockies



PITT | SWANSON
ENGINEERING



>100 Registered Attendees From More than 30 Organizations!

2026 UPIISC Annual Workshop : Key Themes for Workshop

1. Opening Plenary Session with Featured Panelists (6/2)

- Increase Awareness of UPIISC Initiative and Goals
- Highlight Key Areas of National and Regional Priority
- Identify and Discuss National Imperatives Currently Prioritized in the US
- Alignment of the Infrastructure Sensing Workshop with These Areas
- Discussion Surrounding Potential Future “Calls to Action”



2. 2026 UPIISC Workshop Morning Session (6/3)

- NETL / Pitt Updates on Sensor Research
- Overview of New INSITES Consortium Seed Activities
- Condition Based Monitoring and Infrastructure Sensing



3. 2026 UPIISC Workshop Afternoon Session (6/3)

- Thematic Panel Sessions – Distributed Fiber Sensing, Infrastructure Connectivity
- Invited and Keynote Presentations – On-Chip Photonics, Nuclear Applications



2026 UPIISC Annual Workshop : Day 1 Agenda (June 2nd, 2026)

Time	Activity
1:00 p.m.	Welcome Remarks – University of Pittsburgh <i>Michele Manuel</i>, U.S. Steel Dean of Engineering, University of Pittsburgh
1:10 p.m.	Workshop Overview, Background, and Objectives <i>Paul Ohodnicki</i> - Director – Center for Energy - University of Pittsburgh (U. Pitt) <i>Ruishu Wright</i> - Technical Portfolio Lead - National Energy Technology Laboratory (NETL)
1:30 p.m.	Plenary Panel: Emerging Priorities and Initiatives – Current State and Future Trends Moderator: Robert Lieberman, National Academy of Engineering, Lumoptix <i>Bryan Morreale</i>, Chief Research Officer, Research & Innovation Center, National Energy Technology Lab <i>Aftab Khan</i> - Chief Strategy Officer - PJM Interconnection <i>Steven Wray</i>, Director of Economic Development, City of Pittsburgh
2:30 p.m.	Coffee and Networking Break

2026 UPIISC Annual Workshop : Day 1 Agenda (June 2nd, 2026)

Time	Activity
3:00 p.m.	Plenary Panel: National Imperatives – Quantum, AI, Electric Power Grid, and Nuclear Moderator: Paul Ohodnicki – Director – Center for Energy - University of Pittsburgh (U. Pitt) Kelly Rose, Senior Fellow, Computational Science and Engineering, National Energy Technology Lab Benjamin Kroposki, Director of Power Systems Engineering Center, National Laboratory of the Rockies Emma Wong, Nuclear Principal Lead for Innovation, Quantum Technologies, and International Engagement, Electric Power Research Institute Andrew Boulanger - Program Manager - DOE Nuclear Energy
4:00 – 4:30 p.m.	Facilitated Discussion: How Can the Infrastructure Sensing Community Impact These National Objectives?
4:30 – 5:30 p.m.	Networking Social Hour and Light Refreshments Including Guided Laboratory Tours of the Energy Innovation Center

2026 UPIISC Annual Workshop : Day 2 Agenda (June 3rd, 2026)

Time	Activity
8:00 a.m.	Registration and Networking
8:30 a.m.	Welcome Remarks and Introduction to the Workshop (Objective, Scope, Steering Committee)
8:45 a.m.	University of Pittsburgh and National Energy Technology Laboratory Welcome Comments <i>Robie Lewis, Research Excellence and Institutional Planning, National Energy Technology Lab - DOE</i> <i>Paul Ohodnicki - Director – Center for Energy - University of Pittsburgh (U. Pitt)</i> <i>Joshua Carter - Lead Photonic Engineer and Researcher - Naval Surface Warfare Center</i>
9:15 a.m.	Infrastructure Sensing Technology Overview Presentations (U. Pitt. and NETL) <i>Paul Ohodnicki – Director – Center for Energy - University of Pittsburgh (U. Pitt)</i> <i>Ruishu Wright - Technical Portfolio Lead - National Energy Technology Laboratory (NETL)</i>
10:00 a.m.	Coffee and Networking Break

2026 UPIISC Annual Workshop : Day 2 Agenda (June 3rd, 2026)

Time	Activity
10:15 a.m.	INSITES Consortium – U. Pitt. Momentum Funds Project Overview and Update Zachary Harris - RK Mellon Faculty Fellow in Energy - University of Pittsburgh (U. Pitt) Piervincenzo Rizzo - Full Professor - University of Pittsburgh (U. Pitt) William Harbert - Professor of Geophysics - University of Pittsburgh (U. Pitt) Amy Babay - Assistant Professor - University of Pittsburgh (U. Pitt)
11:00 a.m.	Panel on Condition Based Monitoring Across Infrastructure Segments Moderator: Joshua Carter - Lead Photonic Engineer and Researcher - Naval Surface Warfare Center Derek Brown - Director of Cybersecurity and Infrastructure - EQT Corporation Jason Esser - Senior Vice President - Shikun & Binui Andrew Boulanger - Program Manager - DOE Nuclear Energy Jonathan Burgess – Director - Pittsburgh Water Collaboratory
12:00 p.m.	Lunch and Networking Break

2026 UPIISC Annual Workshop : Day 2 Agenda (June 3rd, 2026)

Time	Activity
12:45 p.m.	Panel on Distributed Fiber Optics and Infrastructure Moderator: Paul Ohodnicki - Director – Center for Energy - University of Pittsburgh (U. Pitt) Robert Clapp - Senior Staff Research Scientist - GoogleX John Ohanian - Senior Research Scientist - LUNA Steve Allen - Director of Specialty Marketing - Lightera Paul Dickinson - Chairman of Advisory Council - Fiber Optic Sensing Association
2:00 p.m.	Invited Industry Speaker: AI - Optical Neural Networks and Distributed Sensing – On Chip Photonics Dmitry Kozak - Senior Engineer - Naval Surface Warfare Center Crane Division
2:30 p.m.	Coffee Break

2026 UPIISC Annual Workshop : Day 2 Agenda (June 3rd, 2026)

Time	Activity
2:45 p.m.	Keynote Industry Speaker: Sensing and Instrumentation for Nuclear Applications <i>Luke Breon - Technical Leader - Electric Power Research Institute (EPRI)</i>
3:30 p.m.	Panel on Infrastructure Segment Connectivity and Sensing Needs Moderator: <i>Ruishu Wright - Technical Portfolio Lead - National Energy Technology Laboratory (NETL)</i> <i>Melissa Bilec - Co-Director - University of Pittsburgh Mascaro Center for Sustainable Innovation</i> <i>Alexandra Hakala - Acting Director of Oil and Gas Center of Excellence - National Energy Technology Lab</i> <i>Jason Keller - Director, Grid Infrastructure and Engineering - Duquesne Light Company (DLC)</i> <i>Daniel Bain - Vice Chair - Pittsburgh Water Collaboratory</i>
4:30 p.m.	Looking to the Future and Next Steps
5:00 p.m. – 6:30 p.m.	Technical Poster Session with a Social Hour and Light Refreshments

Thank you for taking the time to join us today!

Any questions, comments, or discussion?